



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/322,283	05/28/1999	DAVID L. ROLLINS	12-0895	7766

7590 11/01/2002

PATENT COUNSEL  
TRW INC  
SPACE & ELECTRONICS GROUP  
ONE SPACE PARK E2 6072  
REDONDO BEACH, CA 90278

[REDACTED] EXAMINER

SEDIGHIAN, REZA

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2633

DATE MAILED: 11/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/322,283	ROLLINS, DAVID L.	
	Examiner M. R. Sedighian	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 04 September 2002.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-5, 7 and 12-24 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-5, 7 and 12-24 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 28 May 1999 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____ .

1. This communication is responsive to applicant's 9/4/02 amendments in the application of David L. Rollins. The amendments have been entered. Claims 1-5, 7, and 12-24 are now pending.

2. The affidavit or declaration filed on September 4, 2002 under 37 CFR 1.131 has been considered but is ineffective to overcome the Burns reference (U.S. Patent No. 5,917,970), the Dishman et al reference (U.S. Patent No. 6,271,953), the Franck et al.reference (U.S. Patent No. 6,188,497), and the article entitled, "linearization of Broadband Analog Optical Link Using Multiple Wavelengths" by Edward Acherman, Technical Digest International Topical Meetings on Microwave Photonics October 12-14, 1998, Sarnoff Corporation, Princeton, New Jersey, pages 45-47.

3. The evidence submitted is insufficient to establish a reduction to practice of the invention in this country or a NAFTA or WTO member country prior to the effective date of the Burns reference (U.S. Patent No. 5,917,970), the Dishman et al reference (U.S. Patent No. 6,271,953), the Franck et al.reference (U.S. Patent No. 6,188,497), and the article entitled, "linearization of Broadband Analog Optical Link Using Multiple Wavelengths" by Edward acherman, Technical Digest International Topical Meetings on Microwave Photonics October 12-14, 1998, Sarnoff Corporation, Princeton, New Jersey, pages 45-47. [The affidavit or declaration filed by applicant merely contains conclusion statement or allegation without support of any evidence or fact. Allegation or conclusions of applicant can not take the place of evidence. MPEP 75 specific states "The oath or declaration **must include facts** show a completion of the invention ...." MEPE 715.07 further specific states "The essential thing to be shown under 37 CFR 1.131 is priority of invention and this may be done by **any satisfactory evidence of the fact. FACTS, not conclusions, must be alleged.... A general allegation that the invention was completed prior to the date of the references **in not sufficient**. Ex parte Saunders, 1883 C.D. 23 O.G. 1224 (Comm'r Pat. 1883). [Similarly, a **declaration** by the invention to the effect that his or her invention was conceived or reduced to practice prior to the reference date, **without a statement of facts demonstrating the correctness of this conclusion, is insufficient** to satisfy 37 CFR 1.131. **37CFR 1.131 (b) requires** that original exhibits of drawings or records, or photocopies thereof, accompany and form part of the affidavit or declaration or their absence satisfactorily explained.] In Ex parte Donvan, 1890 C.D. 109, 52 O.G. 309 (Comm'r Pat. 1890) the court stated.... The affidavit or declaration **must state FACTS** and produce such documentary evidence and exhibits in support thereof as are available to show conception and completion of invention.... The showing of **facts must be sufficient to show: (A) reduction to practice of the invention prior to the effective date of the reference...".****

4. The evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the Burns reference (U.S. Patent No. 5,917,970), the Dishman et al reference (U.S. Patent No. 6,271,953), the Franck et al.reference (U.S. Patent No. 6,188,497), and the article entitled, "linearization of Broadband Analog Optical Link Using Multiple Wavelengths" by Edward acherman, Technical Digest International Topical Meetings on Microwave Photonics October 12-14, 1998, Sarnoff Corporation, Princeton, New Jersey, pages 45-47. While conception is the mental part of the inventive act, it must be capable of proof, such as **by demonstrative evidence or by a complete disclosure to another**. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended. See *Mergenthaler v. Scudder*, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897). The affidavit or declaration filed by applicant merely contains conclusion statement or allegation without support of any evidence or fact. Allegation or conclusions of applicant can not take the place of evidence. MPEP 75 specific states "The oath or declaration **must include facts** show a completion of the invention ...." MEPE 715.07 further specific states "The essential thing to be shown under 37 CFR 1.131 is priority of invention and this may be **done by any satisfactory evidence of the fact. FACTS, not conclusions**, must be alleged.... A general allegation that the invention was completed prior to the date of the references **in not sufficient**. Ex parte Saunders, 1883 C.D. 23 O.G. 1224 (Comm'r Pat. 1883). Similarly, **a declaration by the invention to the effect that his or her invention was conceived or reduced to practice prior to the reference date, without a statement of facts demonstrating the correctness of this conclusion, is insufficient** to satisfy 37 CFR 1.131. **37CFR 1.131 (b) requires** that original exhibits of drawings or records, or photocopies thereof, accompany and form part of the affidavit or declaration or their absence satisfactorily explained. In Ex parte Donvan, 1890 C.D. 109, 52 O.G. 309 (Comm'r Pat. 1890) the court stated.... The affidavit or declaration **must state FACTS** and produce such documentary evidence and exhibits in support thereof as are available to show conception and completion of invention.... The showing of **facts must be sufficient to show (B) conception of the invention prior to the effective date of the reference coupled with due diligence from prior to the reference date to a subsequent (actual) reduction to practice...."**

5. The evidence submitted is insufficient to establish diligence from a date prior to the date of reduction to practice of the Burns reference (U.S. Patent No. 5,917,970), the Dishman et al reference (U.S. Patent No. 6,271,953), the Franck et al.reference (U.S. Patent No. 6,188,497), and the article entitled, "linearization of Broadband Analog Optical Link Using Multiple Wavelengths" by Edward acherman, Technical Digest International Topical Meetings on Microwave Photonics October 12-14, 1998, Sarnoff Corporation, Princeton, New Jersey, pages 45-47 to either a constructive reduction to practice or an actual reduction to practice. The affidavit or declaration filed by applicant merely contains conclusion statement or allegation without support of any evidence or fact. Allegation or conclusions of applicant can not take the place of evidence. MPEP 75 specific states "The oath or declaration **must include facts** show a completion of the invention ...." MEPE 715.07 further specific states "The essential thing to be shown under 37 CFR 1.131 is priority of invention and this may be **done by any satisfactory evidence of the fact. FACTS, not conclusions**, must be alleged.... A general allegation that

the invention was completed prior to the date of the references **in not sufficient**. Ex parte Saunders, 1883 C.D. 23 O.G. 1224 (Comm'r Pat. 1883). Similarly, a **declaration** by the invention to the effect that his or her invention was conceived or reduced to practice prior to the reference date, **without a statement of facts demonstrating the correctness of this conclusion, is insufficient** to satisfy 37 CFR 1.131. **37CFR 1.131 (b) requires** that original exhibits of drawings or records, or photocopies thereof, accompany and form part of the affidavit or declaration or their absence satisfactorily explained. In Ex parte Donvan, 1890 C.D. 109, 52 O.G. 309 (Comm'r Pat. 1890) the court stated.... The affidavit or declaration **must state FACTS** and produce such documentary evidence and exhibits in support thereof as are available to show conception and completion of invention.... However, the actual dates of acts relied on to establish diligence must be provided.... Where there has not been reduction to practice prior to the date of the reference, the applicant or patent owner must also show diligence in the completion of his or her invention from a time just prior to the date of the reference continuously up to the date of an actual reduction to practice or up to the date of filing his or her application... The showing of **facts must be sufficient to show © conception of the invention prior to the effective date of the reference coupled with due diligence from prior to the reference date to the filing date of the application...**". MEPE 71707(a) also specific states "Where conception occurs prior to the date of the reference, but reduction to practice is afterward, it is not enough merely to allege that applicant or patent owner had been diligent. Ex parte Hunter, 1889 C.D. 218, 49 O.G. 733 (Comm'r Pat. 1889). Rather, **applicant must show evidence of facts establishing diligence**".

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 1-2, 5, 13-15, and 22-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Burns et al. (US patent No: 5,917,970).

Regarding claims 1, 13-14, and 22-24, Burns discloses an optical transmitter (10, 12, fig. 1), comprising: a Mach-Zehnder optical modulator (32, figs. 1, 2a) having an RF input port (35a, fig. 1, 2a), a bias voltage input port (37, fig. 2a), an optical carrier input port (28, figs. 1, 2a), an output port (36, figs. 1, 2a); a WDM (26, fig. 1) with two input ports (18a, 18b, fig. 1) and an output port (28, fig. 1), wherein the output port (28, fig. 1) is coupled to the optical carrier input port of the modulator (col. 1, lines 45-52), and two optical carriers sources (14a, 14b, fig. 1) of different wavelengths (col. 2, line 19-25) are coupled to the input of the WDM (col. 1, lines 35-47). As to claims 13-14, Burns further discloses an optical receiver (56, fig. 1) and an optical link (54, fig. 1) connecting the transmitter (12, fig. 1) to the receiver (56, fig. 1).

Regarding claims 2 and 15, Burns further discloses a bias control circuit coupled to the bias voltage input port (col. 2, lines 51-55).

Regarding claim 5, Burns further discloses two optical carrier sources are provided by lasers of different wavelengths (col. 2, lines 20-25).

8 . Claims 1-2, 5, 13-15, and 22-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Ackerman (Linearization of a Broadband Analog Optical Link Using Multiple Wavelengths, Microwave Photonics, 1998).

Regarding claims 1, 13-14, and 22-24, Ackerman discloses an optical transmitter (fig. 2), comprising: a Mach-Zehnder optical modulator (MZ, fig. 2) having an RF input port ( $V_{RF}$ , fig. 2), a bias voltage input port ( $V_{bias}$ , fig. 2), an optical carrier input port (figs. 2), an output port

(figs. 2); a WDM with two input ports and an output port (WDM, fig. 2), and two optical carriers sources of different wavelengths (1320 nm Laser, 1550 nm Laser, fig. 2).

Regarding claims 2 and 15, Ackerman further discloses a bias control circuit coupled to the bias voltage input port ( $V_{bias}$  (control), fig. 2).

Regarding claim 5, Ackerman further discloses two optical carrier sources are provided by lasers of different wavelengths (1320 nm, 1550 nm, fig. 2).

9. Claim 12 is rejected under 35 U.S.C. 102(e) as being anticipated by Dishman et al. (US patent No: 6,271,953).

Regarding claim 12, Dishman discloses an optical transmitter (14a, fig. 1B) including an optical modulator (36, fig. 1B) for modulating an RF input signal (IF, fig. 1B) onto an optical carrier (LO, fig. 1B), an optical receiver (14b, fig. 1B) for demodulating (78, fig. 1B) the RF modulated optical signal and providing an RF output signal (FDM in 14b, fig. 1B). Dishman further discloses the communication is in free space (col. 5, lines 1-9).

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burns et al. (US patent No: 5,917,970) in view of Dishman et al. (US patent No: 6,271,953), or Franck et al. (US patent No: 6,188,497).

Regarding claim 7, Burn differ from the claimed invention in that Burns does not disclose an optical amplifier coupled at the output of modulator. Dishman discloses an optical modulator (36, fig. 1B) and an optical amplifier (40, fig. 1B) at the output of modulator. Franck discloses an optical modulator (162, fig. 16) and an optical amplifier (163, fig. 16) at the output of modulator. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate an optical amplifier such as the one of Dishman or Franck at the output of optical modulator in the optical transmission system of Burns in order to boost the light signals that become attenuated during the transmission and to improve the overall transmission performance and increasing the transmission distance. Furthermore, incorporating an optical amplifier along the fiber transmission line to boost the signal for further transmission is well known in the field of optical data communication.

12. Claims 3-4 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman (Linearization of a Broadband Analog Optical Link Using Multiple Wavelengths, Microwave Photonics, 1998) in view of Yao (US patent No: 5,917,179).

Regarding claims 3-4 and 16-17, Ackerman differs from the claimed invention in that Ackerman does not disclose the bias control circuit includes a WDM, a pair of photodetectors, and a summing junction. Yao discloses an optical modulator (220, fig. 7A) with a feedback control circuit (col. 11, lines 61-67, col. 12, lines 1-8 and 720, 250, fig. 7A) that includes a coupler or a WDM (710, fig. 7A), a pair of photodetectors (724, 256, fig. 7A), and a summing junction (730, fig. 7A). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a control circuit that includes a coupler and a pair

of photodetectors such as the one of Yao for the modulator bias control circuit in the transmission system of Ackerman in order to provide a control circuit that can monitor the optical output of the modulator to determine by how much the modulator's transfer response has drifted and to provide a DC bias voltage to maintain the modulator's transfer response at the desired voltage position to further suppress the quality degradation of the optical output signal.

Regarding claim 18, Ackerman further discloses the optical receiver includes a WDM demultiplexer (WDM, fig. 2), photodetectors ( $i_{det,1.3}$ ,  $i_{det,1.55}$ , fig. 2), and a summing junction (RF Coupler, fig. 2).

13. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ackerman (Linearization of a Broadband Analog Optical Link Using Multiple Wavelengths, Microwave Photonics, 1998) in view of Yao (US patent No: 5,917,179) and in further view of Dishman et al. (US patent No: 6,271,953), or Franck et al. (US patent No: 6,188,497).

Regarding claims 19-21, the modified transmission system Ackerman and Yao further differs from the claimed invention in that Ackerman and Yao do not disclose an optical amplifier coupled to the output of modulator and an optical amplifier coupled to the input of optical receiver. Dishman discloses an optical modulator (36, fig. 1B) and an optical amplifier (40, fig. 1B) at the output of modulator and an optical amplifier (76, fig. 1B) at the input of receiver (78, fig. 1B). Franck discloses an optical modulator (162, fig. 16) and an optical amplifier (163, fig. 16). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate an optical amplifier such as the one of Dishman or Franck at the output of optical modulator, or at the input of optical receiver in the modified optical transmission

system of Ackerman and Yao in order to boost the light signals that become attenuated during the transmission and to improve the overall transmission performance and to further increase the transmission distance. Incorporating an optical amplifier along the fiber transmission line to boost the signal is well known in the field of optical data communication.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (703) 308-9063. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9314.

Application/Serial Number: 09/322,283  
Art Unit: 2633

Page 10

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



JASON CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600